02: Forces

Content Area: **Science**
Course(s): **Honors Physics**
Time Period: **October**
Length: **1**
Status: **Published**

Enduring Understandings:

- Force Buoyancy is an upward force on an object in a fluid.
- Force Elastic is a restoring force
- Force Friction Depends on Surfaces and Force Normal
- Force Gravity is an Attractive force that gets stronger with mass and weaker with distance
- Forces are Pushes and Pulls on Objects
- Forces Require 2 Objects and each object will feel the same force but in opposite directions
- Pressure is the Concentration of a force on an object
- With a net force an object will accelerate
- Without a net force an object will not change it's state of motion

Essential Questions:

- How can we predict the future behaviour of an object?
- How do we know what forces are acting on an object and how strong these forces will be?

Lesson Titles:

- Force Buoyancy
- Force Elastic
- Force Friction
- Gravitational Force
- Introduction to Forces
- Newton's Laws of Motion
- Pressure
- Stopping Distance
- Vertical Motion

Career Readiness, Life Literacies & Key Skills

WRK.K-12.P.1	Act as a responsible and contributing community members and employee.
WRK.K-12.P.4	Demonstrate creativity and innovation.
WRK.K-12.P.5	Utilize critical thinking to make sense of problems and persevere in solving them.

WRK.K-12.P.8	Use technology to enhance productivity increase collaboration and communicate effectively.
WRK.K-12.P.9	Work productively in teams while using cultural/global competence.

Inter-Disciplinary Connections:

LA.RH.11-12.7	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, qualitatively, as well as in words) in order to address a question or solve a problem.
LA.RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
LA.RST.11-12.10	By the end of grade 12, read and comprehend science/technical texts in the grades 11-CCR text complexity band independently and proficiently.
LA.WHST.11-12.1.A	Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.
LA.WHST.11-12.1.B	Develop claim(s) and counterclaims using sound reasoning and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases.
LA.WHST.11-12.1.C	Use transitions (e.g., words, phrases, clauses) to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
LA.WHST.11-12.2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
LA.WHST.11-12.2.E	Provide a concluding paragraph or section that supports the argument presented.
LA.WHST.11-12.10	Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Instructional Strategies, Learning Activities, and Levels of Blooms/DOK:

- Chromebook Activity
- Independent Studies
- Lectures on Introduction to Forces, Newton's Laws of Motion, Gravitational Force, Vertical Motion, Force Friction, Stopping Distance, Force Buoyancy, Force Elastic, and Pressure
- Problem Solving
- Science Labs on Newton's Laws of Motion, Gravitational Force, Vertical Motion, Force Friction, Stopping Distance, Force Buoyancy, Force Elastic, and Pressure

Modifications

Formative Assessment:

- Anticipatory Set
- Closure
- Quizzes on Forces, Newton's Laws of Motion, Gravitational Force, Vertical Motion, Force Friction, Stopping Distance, Force Buoyancy, Force Elastic, and Pressure
- Warm-Up

Summative Assessment:

- Alternate Assessment
- Benchmark
- Marking Period Assessment
- Unit Test on Forces

Alternative Assessments:

Performance tasks
Project-based assignments
Problem-based assignments
Presentations
Reflective pieces
Concept maps
Case-based scenarios
Portfolios

Benchmark Assessments:

Skills-based assessment
Reading response
Writing prompt
Lab practical

Resources & Materials:

- https://sites.google.com/site/delseaphysics1/Home